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# THE DYNAMICS OF POLITICAL CONTROL OF THE BUREAUCRACY

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**A** new paradigm of political-bureaucratic relations emerged through the 1980s holding that U.S. democratic institutions continuously shape nonelective public bureaucracies. Several empirical studies support the paradigm with evidence suggestive of political manipulation but none reveals the scope or specific mechanisms of political control. We explore the dynamics of political control of the bureaucracy explicitly to determine the scope and mechanisms. We examine output time series from seven different public bureaucracies for responsiveness to political tools applied in the late Carter and early Reagan administrations. We find responsiveness in all seven cases. The evidence also shows that political appointments—a shared power of the president and Congress—is the most important instrument of political control; changing budgets, legislation, congressional signals, and administrative reorganizations are less important. These findings confirm intuitive assertions by institutional scholars and suggest a method of “policy monitoring” that could enhance future democratic control of the bureaucracy.

**T**hrough the 1980s theories of political control of the bureaucracy underwent extraordinary change. The dominant paradigm shifted from one emphasizing the extreme difficulty U.S. elected institutions have in directing a massive and lumbering federal bureaucracy to one emphasizing that elected leaders can and do shape bureaucratic behavior in systematic ways. In part this change resulted from the election of a Republican president and Senate in 1980. History demonstrated that political control was possible since the Reagan administration seemingly changed many programs. Equally important, however, was that social science developed new tools for evaluating the extent of political control of the bureaucracy. Scholars increasingly viewed the control problem as an economic one involving manipulation of

microlevel incentives and constraints. They also used dynamic methods to examine the substance of political-bureaucratic relations.

We will present results on the dynamics of political control of the bureaucracy from our study of seven different federal agencies. The findings confirm past research on assorted agencies showing that bureaucracies do respond to external politics. Since our sample of agencies is large, the results demonstrate the scope of political control. However, our main contribution is in showing the causal mechanisms of political control across multiple agencies. We empirically determine *how* political control occurs, as well as the relative importance of various political stimuli (i.e., appointments, budgets, reorganizations, oversight, and legislation). The findings increase scientific knowledge

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of U.S. democracy. They may also be useful in assuring official accountability and in developing monitoring and feedback systems for future democratic control.

### Theories of Political Control

Before the 1980s most research on political-bureaucratic relations was qualitative, seldom considering actual covariations between political stimuli and measurable bureaucratic outputs. For example, the politics-administration dichotomy, which was the dominant paradigm in the public administration literature until well into the 1940s, dispensed a priori with any possibility of political influence on the bureaucratic state. During the 1950s and 1960s the iron triangle or capture theory replaced the politics-administration dichotomy. Capture theory acknowledged that politics was important but argued that the policy loop excluded major political actors, most notably the president (Cater 1964; Freeman 1965; McConnell 1966). As a result of these precepts, many presidential studies took the position that presidents lacked the resources to monitor and control the federal bureaucracy effectively (e.g., Cronin 1980; Fenno 1959; Koenig 1975; Noll 1971; Rossiter 1956). The president was perceived as a disinterested bystander with limited influence.

Similarly, the literature on Congress described difficulties with legislative control mechanisms. Scher (1960) wrote that members of Congress are concerned more with satisfying electorates than with overseeing the bureaucracy. He observed a lack of policy-directing oversight by congressional committees. Others raised questions about the quality of legislative oversight, noting that it is uncoordinated, fragmented, and ad hoc (Bibby and Davidson 1972; Dodd and Schott 1979; Fiorina 1981; Ogul 1976; Sundquist 1981). Similarly, the literature on the congress-

sional appropriations process cast doubt on the budget as an effective tool of control. Wildavsky (1964) and Fenno (1966) described appropriations as based on simplifying decision-making rules rather than rational decisions for controlling public policy. Budgeting was decentralized and incremental, resulting in automatic increases that further insulated the bureaucracy from political control.

Qualitative assessments before the 1980s saw neither the president nor Congress as an effective institution for central control of the bureaucracy. Two developments led to a change in this perception: an economic theory of political-bureaucratic relations and a growing body of empirical support for that theory. *Agency theory* originated in the management literature, where scholars developed principal-agent models to assess relations between private business leaders and their employees. However, political scientists studying politics and bureaucracy saw these models as directly applicable to the problem of political control (see Moe 1984 for a summary).

The application of agency theory to politicians and bureaucrats has several key assumptions. First, the relationship between elected leaders and nonelected bureaucrats is hierarchical. Bureaucratic agents are bound by contract to serve democratic principals. Their primary responsibility is faithful implementation of the law. Second, through time there develop disjunctures between the interests of politicians and bureaucrats. Political coalitions change from those existing when democratic principals initially adopt policies. Similarly, bureaucracies develop separate interests through institutionalization and external politics. Third, politicians will often try to change policy implementation. However, since bureaucrats have separate interests, they will often attempt to shirk external demands. The key question posed by theory is how politicians vested with contemporaneous

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legitimacy can overcome this shirking tendency.

The answer supplied by agency theory is that political control is possible because elected institutions create bureaucracies. They design bureaucracies with incentive structures to facilitate control. Political principals also monitor bureaucratic activities to offset information imbalances. When bureaucratic activities stray from the desired result, policy makers apply sanctions or rewards to bring them back in line. Thus, the theory is dynamic, positing well-informed central decision makers who systematically mold the preferences of bureaucratic agents.

Several studies operating under the assumptions of agency theory found evidence suggestive of political manipulation. For example, Moe (1982) analyzed annual outputs from the Federal Trade Commission (FTC), the National Labor Relations Board (NLRB), and the Securities and Exchange Commission (SEC) and found they varied with changing presidential administrations. Weingast and Moran (1983) used data on FTC decisions and found they varied with the ideology of congressional oversight committees. Moe (1985) employed quarterly data on NLRB decisions and found they varied with features of all three major U.S. institutions (i.e., the president, Congress, and courts). Others examined political control of bureaucracies in an intergovernmental context and found covariation in state programs with both national and subnational politics (Chubb 1985; Scholz, Twombly, and Headrick 1988; Scholz and Wei 1986; Wood 1991a; 1991b).

Still, the evidence on political manipulation remains indefinite, with many unanswered questions. What is the *scope* of political control of the bureaucracy? Is it limited to the few agencies examined by past research, or does it pervade the larger U.S. bureaucracy? What are the *causal mechanisms* of political control? Does it

occur passively through institutional design or actively through manipulation of agency leadership, resources, personnel, or structure? A related concern is the *relative effectiveness* of tools for political control. Is political appointment, budgeting, structure, personnel power, or oversight most important in affecting bureaucratic responsiveness?<sup>1</sup> Rational political control requires knowing how to manipulate the available instruments. Also, agencies may differ in their responsiveness based on certain design criteria. Future policy direction and design would therefore benefit from improved understanding of the characteristics producing bureaucratic stability or responsiveness.

More fundamentally, there are also constitutional issues at stake. If one democratic principal—say, the president—is more effective than others, we might ask whether it is appropriate for policy implementation to reflect executive preferences over those of the Congress or the courts? Some would argue—though certainly not without opposition—that the Congress reflects the public will better than the president because of decentralized constituencies and more frequent elections. In either case, knowing the mechanisms of political control would reveal the relative capacity of democratic institutions to control policy. Such knowledge would allow normative debate of constitutional issues to occur in the light of empirical evidence rather than the darkness of speculation.<sup>2</sup>

### Past Research

This study is the first to examine outputs from many different agencies in a comparative context for evaluating political control of the bureaucracy. However, it is not the first to suggest *how* political control occurs. Institutional scholars offer various explanations for political-bureaucratic responsiveness.

### Congressional Control

Some congressional scholars assert that legislators are the most important actors to consider, since bureaucrats continuously watch the rewards and sanctions from Congress. However, they suggest that congressional control is difficult to observe since the mechanisms are automatic and indirect (Bendor, Taylor, and Van Gaalen 1987; Calvert, McCubbins, and Weingast 1988; Calvert, Moran, and Weingast 1987). Congress designs agency structure and incentives to assure a relation between legislative preferences and bureaucratic outputs (McCubbins 1985). Additionally, legislators find it more efficient under time constraints to monitor bureaucratic performance indirectly rather than actively through oversight hearings; that is, they rely on program recipients, lobbyists, and interest groups to supply information on agency performance (McCubbins and Schwartz 1984). Should discontinuities occur between legislative preferences and bureaucratic activities, Congress controls resources, legislation, and appointments. Bureaucracies are aware of this and are cautious to avoid alienating legislative principals. Thus, Congress does not have to engage in active and continuous oversight to affect political control. Rather, "anticipative responses" assure that administrative decisions will be consistent with congressional preferences.

Past efforts to model congressional influence confirm the elusiveness of congressional control mechanisms. For example, many studies have considered the effect of committee ideology on bureaucratic performance, with mixed results. Typically, these studies measure ideology as an index derived from ratings by interest groups. Using this measure Weingast and Moran (1983), Chubb (1985), and Moe (1985) found that ideology scores related systematically to hypothesized agency outputs. However, Scholz and

Wei (1986) and Eisner and Meier (1990) found no effect from committee ideology.

The measure of ideology used in these studies—interest group ratings—is troublesome for discerning the mechanisms of congressional control. For one thing, these ratings do not reflect specific legislative stimuli but are simply an annual average of past voting records. They are not really even annual, since the scores change most biennially. Thus, ideology scores lack the spatial or temporal resolution to determine how Congress controls the bureaucracy. Additionally, there are collinearity problems associated with congressional ideology scores. When Congress changes, so do the parts of Congress (see, e.g., Cook and Wood 1989). Thus, it is impossible to determine whether bureaucratic responses are due to the entire body, one or more oversight committees, or a multiplicity of forces in the environment of an agency.

### Presidential Control

Presidential studies are less nebulous about why bureaucracies respond to the chief executive. According to Moe (1985; see also Nathan 1983; Waterman 1989) the key mechanism of executive control is the appointment and removal power. Modern presidents select political leadership not only for their expertise and to reward supporters but also for their ability to administer the president's plan. The Reagan presidency more than any other epitomized the use of political appointments to affect political control. The Reagan transition team spent months screening those who would serve, emphasizing loyalty and ideology above all other attributes.

Political appointments are important to the modern presidency, but there are also other tools a president can use to achieve political ends. A president through the Office of Management and Budget (OMB)



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has the initiative in controlling the resources of most agencies. The OMB also monitors the activities of bureaucracies, both their efficiency and their compatibility with the president's program. Through regulatory review (via Executive Orders 12291, 12498, and others) and the Paperwork Reduction Act, the OMB has centralized the rule-making process (Fuchs 1988). While the overall effect of these powers is difficult to assess, severe constraints now obviously exist on the independent policy-making ability of the federal bureaucracy.

The president also affects bureaucratic performance through other channels. Using personnel authority resulting from the Civil Service Reform Act of 1978, the president can choose senior career executives for compatibility with an agenda. The president can use reductions in force or transfers to adjust lower bureaucratic levels. The president can also reorganize a wayward bureaucracy by centralizing control to administration loyalists. All of these powers sum to an unambiguous ability of the chief executive to shape policy.

The multiple tools of the presidency for controlling the bureaucracy can produce a complex pattern of responses through time. Yet past efforts to model presidential effects with empirical methods have been simplistic and unconcerned with capturing this dynamic. The typical analysis has used annual data with dummy variables switching on at the first or second year of a presidency to represent all executive effects (e.g., see Chubb 1985; Eisner and Meier 1990; Scholz and Wei 1986; Scicchitano and Hedge 1989; Stewart and Cromartie 1982). The use of annual data and dummy variables is problematic. Annual data cannot distinguish among the many stimuli that occur early in a presidency. Change can result from appointments, budget changes, reorganizations, congressional effects, or other factors, all occurring at different

times. Furthermore, it is incorrect to assume that change in executive influence occurs during only one year of a presidency. Dummy variables so designed may only account for variance, not truly explain it. Clearly, we need a more complex specification with finely divided data to reveal the underlying dynamic of political-bureaucratic relations.<sup>3</sup>

### Methods and Data

This study differs from previous research on political-bureaucratic relations in that the designated purpose is to reveal the scope and specific mechanisms of political control. A brief description of our methodology follows (for a full description, see the Appendix). The research employs an explicitly causal logic, considering both the timing and covariation between independent political events and bureaucratic responses. We integrate qualitative methods with quasi-experimental time series analysis. That is, we identify particular events beforehand that should have caused change in bureaucratic outputs by searching archives and/or elite interviews. We define the characteristics of the events including the timing, magnitude, and direction of the stimulus. We then hypothesize that the events caused change in related outputs from public bureaucracies at time  $t$  or  $t + n$ . Box and Tiao's (1975) impact assessment methods are then used to test the hypotheses. Given a statistically significant response from an event, we again use qualitative methods to search for alternative explanations to the observed stimulus-response relationships. The types of events we consider are political appointments, resignations, budget increases and decreases, congressional oversight hearings, administrative reorganizations, legislation, and political signals that should produce "anticipative responses."

Agency outputs include various core regulatory enforcements including litigations, sanctions, and administrative decisions.

The sample of agencies in the analysis consists of the Equal Employment Opportunity Commission (EEOC), the FTC, the Nuclear Regulatory Commission (NRC), the Food and Drug Administration (FDA), the National Highway Traffic Safety Administration (NHTSA), the Office of Surface Mining (OSM), and the Environmental Protection Agency (EPA). We obtained time series of agency outputs through Freedom of Information Act requests. The sample was not random but selected to maximize differences between agencies in organizational design. Three of the agencies are independent regulatory commissions, three are executive department agencies, and one is an independent executive branch agency. The agencies differ considerably in administrative discretion, constituency, issue salience, complexity of implementation technology, and organizational esprit. All of the agencies implement regulatory policies because outputs from such programs are easy to measure. The sample was also shaped somewhat by agencies' willingness to supply data in the form we requested. Still, we can think of no reason why the reported results should not be generalizable to the entire federal bureaucracy.

It is important to emphasize one feature of the data that distinguishes our study from previous research. Unlike most studies, which rely on annual data, our data consist of finely divided time intervals that enable us to explore the underlying dynamic of bureaucratic responses to political events. Most dependent series are monthly observations; but when such data were not available, we relied on quarterly measures. The fine temporal resolution of the data allowed establishing a much closer correspondence between the timing of political events and subsequent bureaucratic responses. In most

cases bureaucratic responses occurred in the same month as, or the month following, a political event. We consider this timing to be strong evidence of causal connections between the application of political tools and subsequent changes in bureaucratic performance.<sup>4</sup> We shall now report selected findings to illustrate the scope and mechanisms of political control.

## Studies in Political Control

### The Equal Employment Opportunity Commission

The EEOC is an independent regulatory commission originally established to administer sections of the Civil Rights Act of 1964 dealing with employment discrimination. That legislation made it illegal for employers to discriminate on the basis of race, color, religion, sex, or national origin. Since 1964 the agency has also received responsibility for implementing the Equal Employment Opportunity Act of 1972, the Equal Pay Act of 1963, the Age Discrimination Act of 1967, parts of the Vocational Rehabilitation Act of 1973, and several executive orders. The primary tasks of the EEOC in these regards are to investigate, conciliate, and litigate complaints of employment discrimination.

Regulating employment discrimination is controversial. For this reason politicians have ample motivation to engage in political manipulation. An examination of EEOC history supports this assertion. In the 22 years from 1965 to 1988 there have been 15 commission chairs and 17 general counsels. The budget and number of personnel at the agency have also varied through time with the changing ideologies of both Congress and the president (Wood 1990). Thus, there are obvious stimuli operating to change EEOC behavior.

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Our analysis for the EEOC is constrained by the available data.<sup>5</sup> We report a time series of monthly litigations from 1981 to 1987. Because the data start in January 1981, we consider only stimuli pertinent to the Reagan administration. Still, given the stated preference of the Reagan administration for ending employment quotas and affirmative action, the stimuli after January 1981 should have been especially strong.

The EEOC Office of General Counsel handles litigations. Reagan's nominee to head that office, Michael Connolly, was very controversial. He was an attorney who had previously represented major corporations against the government in antidiscrimination suits. His nomination was vigorously opposed by civil rights groups claiming he would not enforce the law. Still, he was well qualified for the job and confirmed by the Republican Senate in September 1981. Shortly after arriving at the commission, Connolly aroused further attention by telling his staff he would no longer be pressing sexual harassment, age discrimination, equal pay, and class action suits (*Nation*, 8 May 1982). Additionally, Connolly sent directives to the field reversing former policies without discussing them with his own staff or the commission (*Business Week*, 9 August 1982). Connolly's tenure as the EEOC general counsel was controversial, eventually resulting in his resignation in January 1983. His replacement, David Slate, was career-oriented and more palatable to the Congress and EEOC constituencies. Finally, in September 1984 under intense congressional scrutiny, the commission issued a Statement of Enforcement Policy, which declared, "Every case, where violation of an EEOC enforced statute is found and attempts at conciliation have failed, should be submitted to the full Commission for litigation authorization." This effectively removed the final authority of the general counsel over litigation decisions. Thus,

we hypothesize three possible stimuli affecting EEOC litigations through this period: the Connolly appointment, the Connolly resignation/Slate appointment, and the commission's Statement of Enforcement Policy.

Table 1 reports the statistical results. Figure 1 contains a graph of the empirical data along with predictions from the model reported in Table 1. The commission's Statement of Enforcement Policy produced no change in the number of litigations. However, the other two interventions were significant. The Connolly appointment produced an immediate decline of 4.57 litigations per month followed by a continued movement to a level 18.28 litigations per month below the preintervention mean. In April 1983, one month after the Slate appointment there was an abrupt increase of 6.58 litigations per month. The Slate appointment simultaneously produced a trend that increased litigations by an average .55 cases filed per month. The lag is reasonable, since it takes longer to initiate litigations than it takes to halt them. Thus, the EEOC initially responded in a completely predictable fashion to the changing philosophy of the presidency. However, executive influence was counterbalanced by Congress and EEOC constituencies, resulting in an appointee who produced movement in a different direction.

### The Federal Trade Commission

The FTC, like the EEOC, is an independent commission headed by five commissioners with its chair designated by the president. However, unlike the EEOC, FTC independence has always been a matter of controversy. The agency regulates unfair and deceptive trade practices under the Federal Trade Commission and Clayton Acts of 1914. It also shares responsibility with the Justice Department for regulating unfair competition under the Sherman Anti-Trust Act. The vague



**Table 1. The Impact of Political Stimuli on  
Independent Regulatory Commission Outputs**

Variable and Parameter	Equal Employment Opportunity Commission (EEOC)	Federal Trade Commission (FTC)	Nuclear Regulatory Commission (NRC)
<b>Appointment</b>			
$\omega_0$	-4.57 (-2.03)	-3.50 (-2.17)	-68.41 (-2.02)
$\delta_1$	.75 (6.07)	—	.76 (4.24)
<b>Midterm resignation/appointment</b>			
$\omega_0$	6.58 (2.01)	—	—
$\omega_0$	.55 (2.27)	—	—
$\delta_1$	.99 (44.54)	—	—
<b>Legislation</b>			
$\omega_0$	—	—	154.82 (4.09)
$\omega_0$	—	—	214.15 (5.69)
<b>Noise Components and Diagnostics</b>			
ARIMA	(0,0,1)	(0,1,1)	(1,0,0)
Autoregressive ( $\phi$ )	—	—	.21 (2.24)
Moving average ( $\theta$ )	.51 (3.69)	.81 (15.63)	—
Mean ( $\mu$ )	24.24 (9.88)	—	181.89 (40.10)
Residual mean square (noise only)	80.69	7.77	1,860.04
Residual mean square (full model)	28.74	7.57	1,404.15
Residual mean square (percent change)	64.00	2.60	24.51
Autocorrelation (Q)	25.59	27.26	15.62
DF	22	23	22

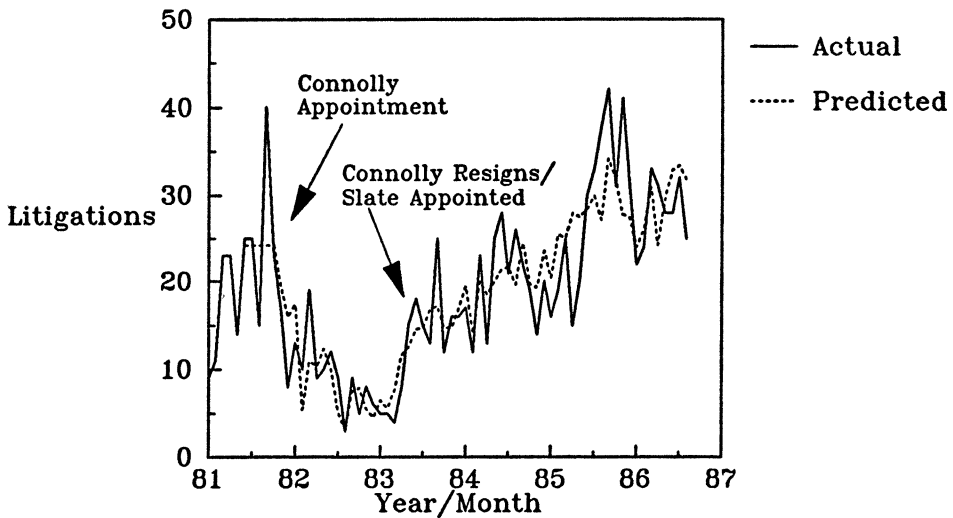
*Note:* *t*-ratios are in parentheses. The EEOC and FTC intervention series were step inputs. The NRC intervention series were pulse inputs. The FTC dependent series was differenced to achieve stationarity. The  $\omega_0$  parameters show the amount of change in the first time period after an intervention. The  $\delta_1$  parameters are a weight reflecting the rate of change in succeeding time periods.

statutory mandate of the agency offers wide discretionary authority to regulators over what sorts of activities to pursue (Katzman 1980a). Thus, from its creation till the 1970s, some argued, the FTC was a quintessential example of agency capture (e.g., Stone 1977). In the early 1970s there was a turnabout at the FTC. A change in

staffing produced an agency that vigorously represented consumer interests beginning in 1971 (Meier 1985). In 1977, President Carter's chair, Michael Pertschuk, further increased the consumerism of the agency. In response, business interests launched an effort through Congress to return policy to pre-1970 conditions.

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Figure 1. The Impact of the EEOC General Counsel on Litigation Activities by the Commission



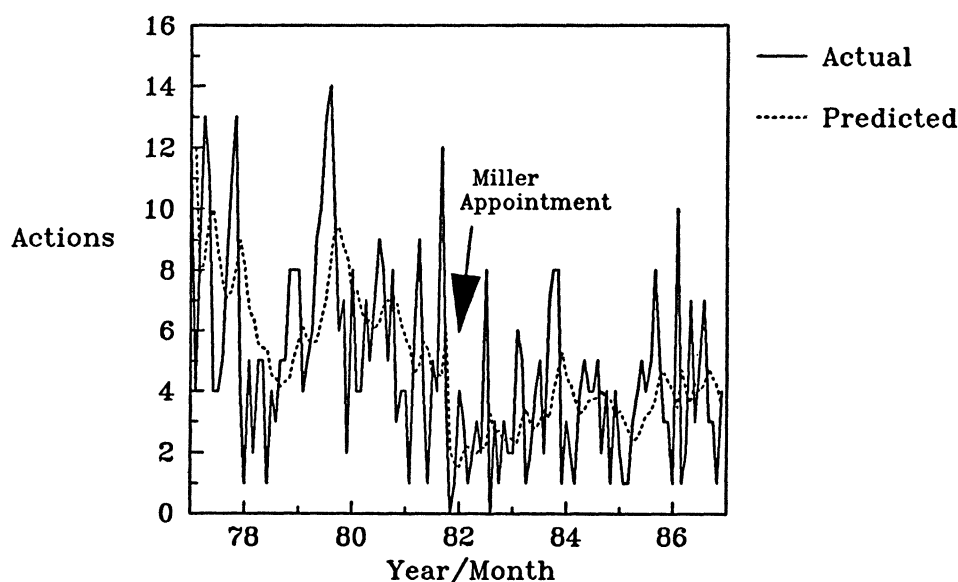
With the Reagan presidency and "regulatory relief," there came the clear expectation that business would dominate the agency. Still, there is considerable uncertainty in the published research over what movements have actually occurred.

For example, Katzman (1980b) considered FTC decisions for 1970–76 on the types of cases pursued. He concluded that internal power struggles within the agency were most important in explaining the mix of cases the FTC handled. In contrast, Weingast and Moran (1983; see also Calvert, Moran, and Weingast 1987) examined annual data for 1964–76 on FTC case selection decisions and found they varied systematically through time with congressional ideology. That is, pro-business congressional orientations meant probusiness FTC case selection. On the other hand, Moe (1982) used annual data for 1945–77 to examine covariations between changing presidential administrations and the number of FTC complaints issued. He concluded that the number of complaints varied through time but not in

the manner one would intuitively predict. Republican administrations brought *larger* numbers of FTC complaints against business, an obviously counterintuitive result. In contrast, Stewart and Cromartie (1982) used annual data to examine FTC deceptive trade practice cases and found they vary predictably with changing presidential administrations. However, Yandle (1985) challenged Stewart and Cromartie's finding, arguing that deceptive trade practice cases are only one dimension of FTC performance. The larger picture, he argued, reveals no presidential effects.

Previous empirical research leaves unresolved the question of FTC susceptibility to political control. However, it also suggests some stimuli that should have changed FTC activities if political control really occurs. For one thing there was dramatic turnover in the membership of congressional committees responsible for overseeing the FTC in 1977. Membership changed from a markedly proconsumer orientation before 1977 to a markedly

Figure 2. The Impact of the Chairman on Enforcement Activities of the Federal Trade Commission



probusiness orientation after 1977. Thus, if the agency responded to congressional influence, the vigor of FTC regulation should have declined after 1977. Qualitative evidence suggests the Pertschuk FTC did not yield to congressional influence after 1977, since Congress continued highly visible efforts to manipulate the agency. Between 1977 and 1980 Congress expressed disapproval of FTC policies by not approving an FTC budget and funding its activities through a series of continuing resolutions. In May and June 1980 Congress twice actually allowed funding to expire. A budget-maximizing bureaucracy would have taken these "signals" and changed direction.<sup>6</sup> In late May 1980 Congress passed, and the president signed, the Federal Trade Commission Improvements Act, which authorized FTC funding through fiscal year 1982 but also restricted FTC rule making in certain areas. This may also have affected FTC enforcement. Finally, in July 1981 the Reagan administration nominated James Miller

III, a conservative economist, to head the FTC. So the vigor of FTC activities should have declined after Miller's arrival at the FTC in October 1981.

To evaluate whether these stimuli produced responses in FTC behavior, we selected data on the number of enforcement measures between 1977 and 1987. The enforcement measure was a monthly sum of all consent decrees obtained, final administrative orders issued, and concluding agreements reached by the FTC. The statistical results are presented in Table 1. The empirical data and model-predicted results are presented in Figure 2.

Concerning changing congressional oversight, the budget cutoffs, and the 1980 reform legislation, the data offered no support for the congressional dominance theory. There was no statistically significant post-1977 downward trend. There was also no response to model components for budget cues or legislation. Rather, noise terms explained fluctuations through this period as well as determi-

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nistic specifications, so we dropped these terms from the model. Of course, the non-findings could result from our particular measure, so more work on congressional influence at the FTC is needed.

Concerning presidential influence, however, there was a significant finding. In the same month James Miller III became commission chair there was a drop of about 3.5 (about 50%) in the monthly number of enforcement actions by the agency. Visual inspection of Figure 2 also suggests a continued lower average level of FTC activities after Miller for the remainder of the Reagan administration. However, the time series was drifting, so we could not confidently provide pre-intervention and postintervention estimates of what the mean levels were. Still, the timing and magnitude of the response to the Miller appointment suggests that the administration appointee affected FTC activities.<sup>7</sup>

### The Nuclear Regulatory Commission

Congress created the NRC in 1974 as a response to suspicions that the older Atomic Energy Commission (AEC) subjugated safety concerns in promoting nuclear power. Congress passed the Energy Reorganization Act of 1974, which split the AEC into two agencies, the NRC and the Energy Research and Development Administration (ERDA). The legislation charged ERDA with developing nuclear and other forms of energy, while the NRC was to regulate nuclear safety. Because of the technological risks associated with nuclear safety, Congress designed the NRC to emphasize technical rationality over responsiveness to political control.

The NRC is an independent commission headed by five commissioners who serve staggered five-year terms. The president designates the commission chair and nominates its membership. However, the president has traditionally exerted little

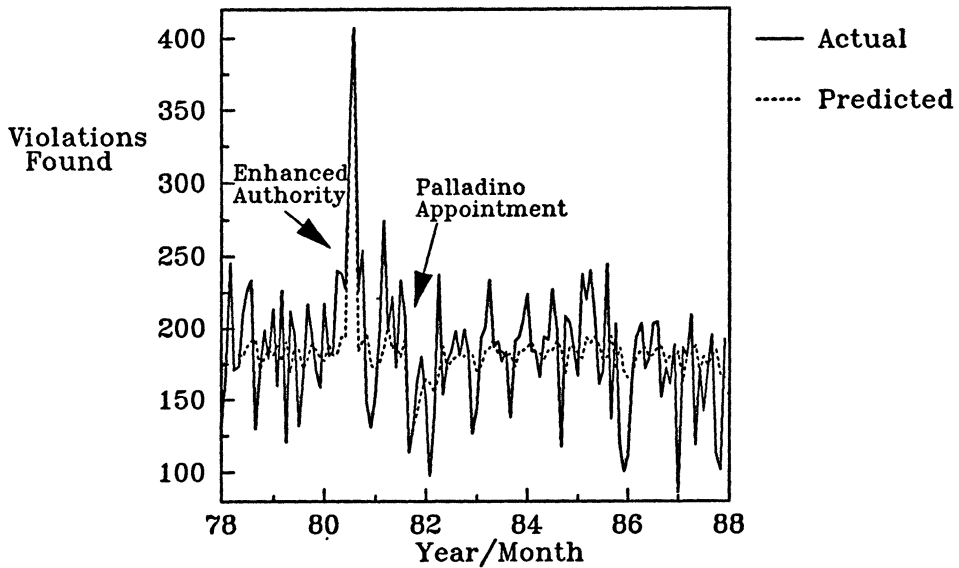
control over agency policy. The OMB does scrutinize the NRC's budget; but it does not review legislative proposals by the NRC, due to the independent posture of the commissioners (Goodman and Wrightson 1987, 166-71). Moreover, the agency's internal structure insulates commissioners from routine administrative functions by separating the commission from its staff (Waterman 1989). An executive director administers the agency. There are also rigid constraints on administrative discretion through very specific administrative rules for dealing with regulatory problems. The purpose is to limit external political influence over NRC field operations.

Because the NRC's organizational design emphasizes technical rationality over external control, the prior expectation is that the agency would be insensitive to political manipulation.<sup>8</sup> To evaluate the expected independence of NRC activities from external politics we selected monthly data for safety violations found by NRC field inspectors from 1978 to 1988. Preliminary interviews with NRC officials suggested two events that may have caused change in NRC enforcements. First, in June 1980 Congress passed legislation increasing the size of the maximum penalty that could be levied by NRC inspectors from five thousand to a hundred thousand dollars per violation. The NRC requested the new legislation, arguing that safety citations had no teeth (U.S., House 1979). Thus, we hypothesized an increase in NRC enforcement as inspectors used their new authority in the months following the legislation.

Second, activities may have responded to changes from the Reagan administration. During the 1980 campaign Reagan expressed the desire to reform nuclear safety regulation and promote the ailing nuclear power industry. Between 1981 and 1987 there was a gradual reduction in the NRC's budget of about 10% in current dollars. According to NRC officials, the budget reductions were almost completely



Figure 3. The Impact of the Reagan Chairman on NRC Enforcement Activity



absorbed by the research program and unlikely to have affected NRC enforcements. A more likely event was the arrival at the commission of Reagan administration chair, Nunzio Palladino. Palladino shared the administration's desire to reform nuclear safety regulation. Accordingly, we hypothesized a decline in NRC enforcements corresponding with the appointment of Nunzio Palladino in June 1981.

Table 1 reports statistical results for these predictions. Figure 3 presents the actual data, along with a graph of the model predictions from Table 1. Both the legislative and presidential interventions were significant. In July and August of 1980 following the new legislation there was a substantial increase in the number of safety violations cited by NRC inspectors. The increase for July was about 155 violations above the preintervention mean, controlling for the effects of autoregressive noise; for August the increase was about 214 additional violations.

We also found a weak, but statistically significant, response beginning in the same month Chair Palladino arrived at the commission. In June 1981 there was an abrupt decline of about 68 violations per month, which decayed gradually back to the preintervention level. This calculates to a total reduction in NRC safety violations of about 285 fewer than would have occurred absent the Reagan appointee. (The total change here is computed  $\omega/1 - \delta$ ). This effect is not large but still demonstrates political influence in an agency that most observers consider to be independent.

### The Food and Drug Administration

The FDA, unlike the EEOC, FTC, and NRC, is an executive branch agency in the chain of command of the president. Residing in the Department of Health and Human Services, the FDA has primary responsibility for assuring the safety, purity, cleanliness, and effectiveness of

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drugs, cosmetics, medical devices, and some foods. In performing these tasks there are wide variations between programs in the discretion granted by Congress. For example, in regulating the market entry of drugs and food additives bureaucratic discretion is tightly bound by the Kefauver-Harris Amendments of 1962 and the Delaney Clause of the Food Additive Amendments of 1958. Congress specified that products must be proven safe and effective before market entry. A rigidly bureaucratized and sometimes lengthy process accompanies this requirement (Quirk 1980). On the other hand, for product withdrawals and regulating the pure and sanitary manufacture of foods and drugs the agency has wide discretion (Meier 1985). Thus, we should see agency responsiveness but variations among programs owing to the varying discretion of administrators. We select one program—regulating the safe and sanitary manufacture of food and drugs—to illustrate the dynamics of political control at the FDA.

In regulating the manufacture of food and drugs, about a thousand FDA inspectors perform on-site inspections of the more than 90 thousand plants located in the United States, as well as import entry points (Greer 1983). On finding violations, enforcement personnel have the full arsenal of administrative tools. They can take informal action by making office visits or phone calls. They can issue formal letters of violation warning the manufacturer of the infraction or possible impending action. They can seek injunctions on the continued manufacture or marketing of unsafe products. They can also ask the manufacturer voluntarily to recall products already marketed. Failing this, they can sometimes seize hazardous products to protect the public health and safety (Bryner 1987; Gotttron 1982). Finally, as a last resort, they can file lawsuits against negligent manufacturers or even publicize violations.

We select one of these various enforcement activities—product seizures—to illustrate FDA responsiveness. The data run quarterly from 1977 to 1988. We began with little prior expectation about what events should have changed FDA activities through this period. Reagan's "regulatory relief" agenda may have been important, but food and drug issues were hardly the hot topic of the 1980 campaign. Interestingly, there was a gradual increase in the FDA's budget through the first term of the Reagan administration, so it was not reasonable to expect a response to changing fiscal conditions. On the other hand, the Reagan appointment to head the FDA—Arthur Hull Hayes—was ideologically consistent with Reagan, so the most likely specification was a response to the Hayes appointment.<sup>9</sup>

We report results in Table 2 for FDA product seizures. The empirical data and model predicted results are in Figure 4. As expected, they show a decline in product seizures in the same quarter Commissioner Hayes arrived at the FDA in May 1981. Seizures declined by about 47 per quarter (54%) and remained at this level for the rest of the Reagan administration. Thus, we posit a straightforward case of top agency leadership manipulating the activities of an agency on behalf of the president.

### The National Highway Traffic Safety Administration

The NHTSA is situated within the Department of Transportation and regulates automobile safety. An outgrowth of the consumer movement of the early 1970s, Congress charged the agency with establishing "reasonable, practicable, and appropriate" safety standards for automobiles and creating a system for finding and reporting safety defects. The NHTSA conducts its own field tests and engineer-

**Table 2. The Impact of Political Stimuli on Executive Department Agency Outputs**

Variable and Parameter	Food and Drug Administration (FDA)	National Highway Traffic Safety Administration (NHTSA)	Office of Surface Mining (OSM)
Early administration appointment			
$\omega_0$	-46.59 (-15.51)	20.96 (3.84)	—
$\delta_1$	—	.33 (1.46)	—
Midterm resignation/appointment			
$\omega_0$	—	-22.85 (-5.34)	—
$\delta_1$	—	.39 (3.56)	—
1980 election			
$\omega_0$	—	—	-34.46 (-5.05)
$\delta_1$	—	—	.75 (11.77)
Reorganization ( $\omega_{02}$ )	—	—	-24.13 (-2.10)
Preemption			
$\omega_0$	—	—	26.12 (2.74)
$\delta_1$	—	—	.59 (3.36)
Noise Components and Diagnostics			
ARIMA	(1,0,1)	(0,0,0)	(1,0,0) (1,0,0) <sub>12</sub>
Autoregressive ( $\phi$ )	.41 (1.68)	—	.28 (2.69)
Moving average ( $\Theta$ )	.83 (4.89)	—	.55 .28
Mean ( $\mu$ )	102.20 (46.88)	45.98 (25.50)	—
Residual mean square (noise only)	757.23	262.92	274.78
Residual mean square (full model)	387.72	29.33	201.72
Residual mean square (percent change)	48.80	88.84	26.59
Autocorrelation (Q)	10.02	19.99	21.03
DF	21	23	22

*Note:* *t*-ratios are in parentheses. All intervention series were step inputs except the NHTSA early administration appointment. The OSM dependent series was differenced to achieve stationarity.

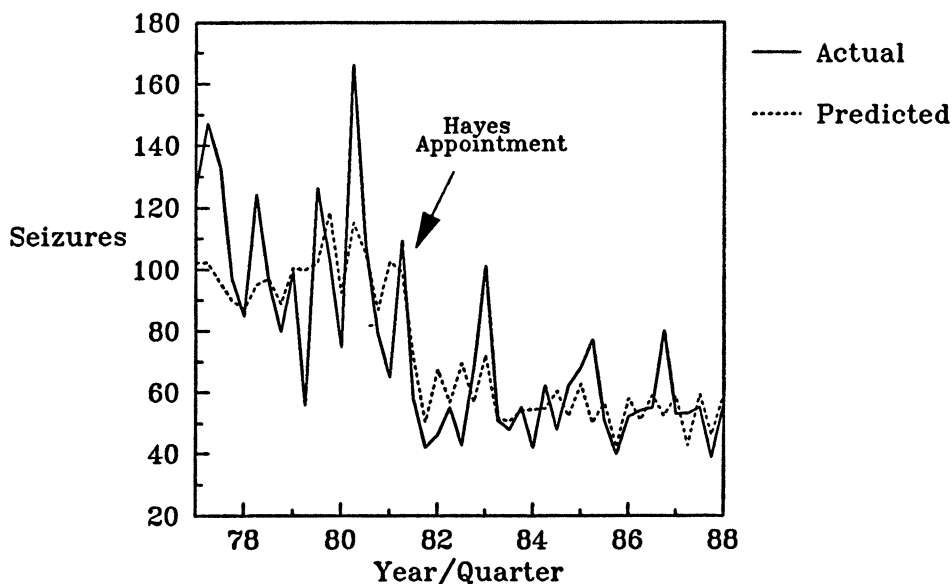
ing evaluations. It also provides a consumer hotline for reporting problems. The agency has legislative authority to fine automakers, but more often relies on

voluntary recalls or publicity to affect compliance.

During the Carter administration the NHTSA was a zealous advocate of auto-

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Figure 4. The Impact of the Reagan Chairman on Product Seizures by the Food and Drug Administration



mobile safety standards. Preliminary examination of our data show that Joan Claybrook, the Carter NHTSA administrator, increased agency activities to levels about 16% higher than the Nixon-Ford administration and 19% higher than the Reagan administration. These facts are interesting, though not surprising in light of the cases we have already reported. However, what we found more interesting was that some NHTSA activities declined *before* the Reagan administration, absent any apparent executive or congressional stimulus.

In Figure 5 we graph the data for quarterly engineering evaluations by the NHTSA from 1978 to 1988. The graph shows that the number of evaluations declined as early as the first quarter of 1980, more than a year before any possible effect from the Reagan administration. Furthermore, a search of congressional records showed no apparent inducement from the Congress. Because of the timing

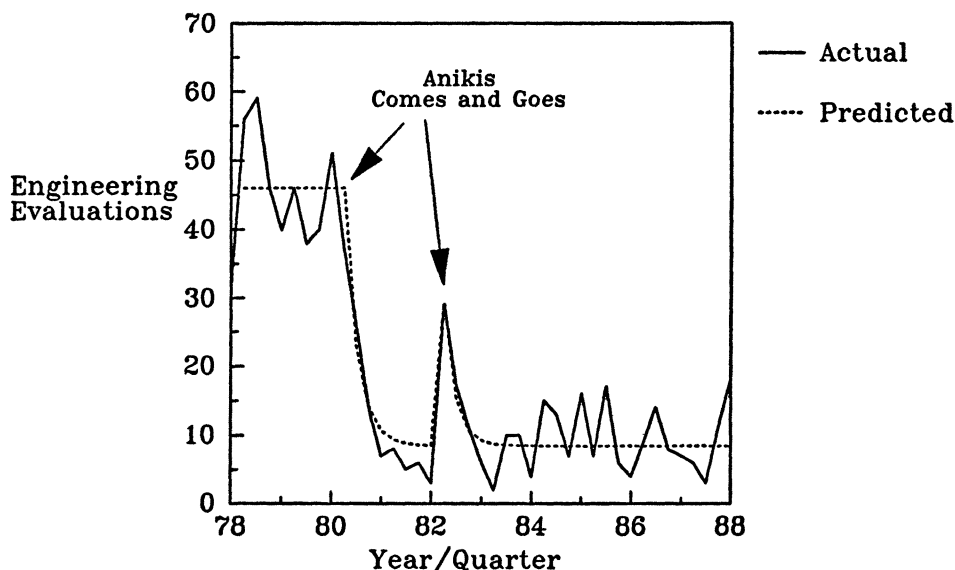
and magnitude of this decline, we were compelled to ask *why* such a dramatic change occurred.

We conducted interviews with officials who were at the NHTSA through this period. They directed our attention to a serious staffing error made by Administrator Claybrook. As one official told us, "Claybrook thought she had quite a find." Instead, her appointee proved to be an individual who did not share her regulatory philosophy. George Anikis, according to one respondent "never could find a good reason for conducting an engineering investigation." Thus, in explaining the premature decline we hypothesized that engineering evaluations changed beginning with the Anikis assignment to the Office of Defect Investigations. We also expected to see an increase when he left, given his apparent unpopularity with NHTSA personnel.

Table 2 reports the statistical results. Figure 5 reports empirical data and model



Figure 5. The Impact of Appointments on Engineering Evaluations by the National Highway Traffic Safety Administration



predictions. As expected, the decline in auto safety defect engineering evaluations corresponded perfectly with George Anikis's arrival at the Office of Defect Investigations. In the second quarter of 1980 there was an initial decline of around 23 evaluations. The decline continued until Anikis left in the second quarter of 1982 when the NHTSA conducted about 37 fewer quarterly reviews than the average before his assignment. Interestingly, his departure marked an apparent celebration, since engineering evaluations increased sharply. For one quarter there was a rise of 21 evaluations followed by a rapid decline to the postintervention mean. This level remained for the duration of the Reagan administration.

### The Office of Surface Mining

Congress established the OSM within the Department of Interior in 1977 to implement the Surface Mining Control and

Reclamation Act of 1977. Before the legislation, regulation of surface mining was a state function. State laws, regulations, and agencies were inadequate, resulting in mine operations destructive of the environment and, in some cases, dangerous to human health. Congress intended to change this by placing primary responsibility for regulation with the national government but through a federal scheme.

The OSM developed rapidly during the Carter administration as an agency intent on obtaining compliance. There was a perceived mandate at the OSM for strong regulation when President Carter publicly expressed disappointment that the legislation was not as tough as he had wanted. This, along with the appointment of several persons of similar philosophy to the OSM start-up task force meant a "gung ho" attitude among agency personnel. Many OSM officials were former state agency inspectors who, disgruntled

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by their inability to regulate at the state level, wanted to make a point at the federal level (Shover, Clelland, and Lynxwiler 1986). Thus, in 1978, when the agency started operation, there was rapid growth in enforcement activities.

Enforcement personnel used basically five tools to enforce regulatory compliance: inspections, notices of violation, cessation orders, fines, and litigations. Inspections demonstrated regulatory presence. However, many operations, especially those in eastern states, were "outlaw" operations, so that establishing compliance required coercion. A mild form of coercion was the notice of violation warning of impending action. However, in extreme cases when violations continued or there was hazard to public health, safety, or the environment, the OSM issued cessation orders to halt mining operations. During 1979 and 1980 the OSM made liberal use of cessation orders, with as many as 175 written in a single month by the 70 or so agency inspectors.

Surface mining enforcement was coercive both to mine operators and to states with economies dependent on mining operations. The OSM personnel did not help relations any by the uncompromising intensity of their efforts. There was also a marked disparity in the vigor of enforcement between eastern and western OSM regions. During 1979 and 1980 OSM inspectors issued about 180 cessation orders in the East for every one issued in the West. Consistently, they also issued about 37 notices of violation in the East for every one issued in the West. The response of eastern operators and states to this apparent discrimination was predictable. An intensive lobbying effort began in Congress to gain relief from the zealots at the OSM.

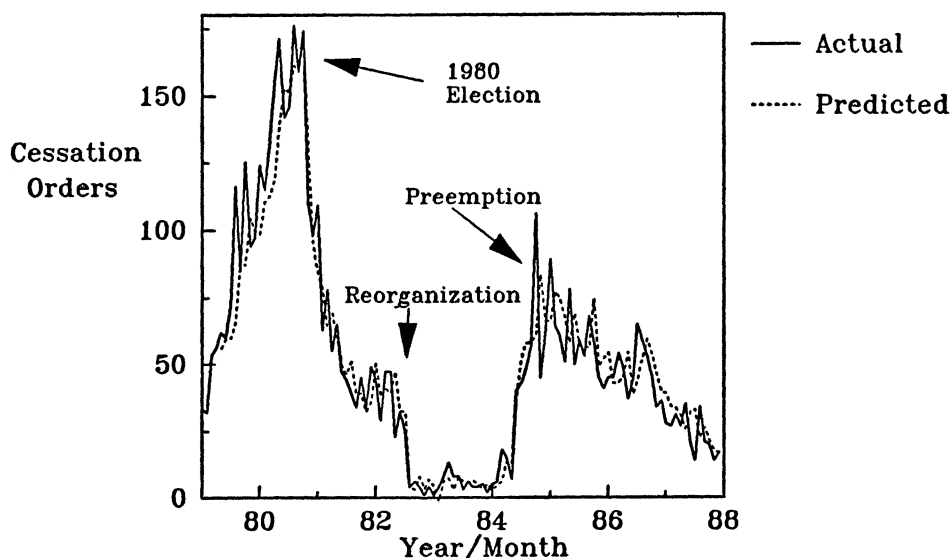
Some qualitative evidence suggests that the OSM had already seen the wisdom of moderation before the Reagan election in November 1980 (Shover, Clelland, and Lynxwiler 1986, 122). However, if it

had not, the early Reagan administration attack on environmental regulation surely made the point. Reagan appointed anti-conservationist James Watt to head his Department of the Interior. Watt summarily named James Harris as director of the OSM. In May 1981 Harris informed OSM regional directors the agency was being reorganized. The reorganization plan involved structural changes to facilitate returning "primacy" to the states. It eliminated field enforcement offices. It also reduced the number of OSM personnel from about a thousand to around six hundred because, according to congressional testimony, state agencies would soon be taking over enforcement responsibilities (Culhane 1984; U.S., House 1981; U.S., House 1982). Perhaps most important, the reorganization plan stripped field personnel of discretionary authority to write notices of violation, issue cessation orders, or initiate litigation without prior approval from central offices (Shover, Clelland, and Lynxwiler 1986).

Meanwhile, not all states willingly accepted the "primacy" offered by the Reagan administration. In seven eastern states, judges issued injunctions that prohibited state "primacy" applications. Two states, Tennessee and Oklahoma, refused to provide adequate resources to run their programs according to federal standards. In April 1984 the OSM reimposed federal strip-mining regulation in these two states (Derthick 1987, 70; Pasztor 1984; Reagan 1987, 190). The OSM resumed its preemptive role in prodding state agencies to assume regulatory responsibility.

Several events from this history should have changed OSM behavior. The most obvious is the installation of Reagan administration leadership at the OSM early in 1981. Additionally, there are the reorganization of the agency and removal of enforcement authority from field personnel and the resumption of some enforcement activities in 1984 to prod reluctant

Figure 6. The Impact of the 1980 Election and Reorganization of the Office of Surface Mining on Cessation Orders



states.

To test for these effects we selected a monthly time series from 1979 to 1988 of cessation orders issued by the OSM. Model results are in Table 2. Graphs of the data and model predictions are in Figure 6. Unexpectedly, there was no response to the Reagan appointments. Rather, the decline had already occurred beginning with the Reagan election in November 1980. Follow-up interviews suggest this timing is an example of an "anticipative response" by self-interested bureaucrats trying to save jobs. Agency officials, beleaguered by external pressure, moderated enforcements to appease the incoming Reagan administration. Beginning with the Reagan election in November 1980 there was an immediate reduction of about 34 cessation orders per month. The decline continued to a new level about 138 orders lower than the peak in 1980. By the time Director Harris took control of the OSM, the agency was

already subdued. Nevertheless, the new OSM leadership followed through with plans for reorganization. In August 1982 there was a second response. The reorganization produced a decline of about 24 cessation orders per month. Enforcements remained at this level until April 1984. Beginning in this month, the OSM resumed regulation in two reluctant states with an increase of about 26 cessation orders per month. From this level there was a gradual decline in the number of cessation orders to 1988.

### The Environmental Protection Agency

President Nixon created the EPA in 1970 through an executive reorganization that consolidated 15 different environmental programs under one administration. The EPA is Washington's largest bureaucracy with an operating budget of \$5.3 billion and a staff of over 14 thousand in 1987. The agency implements

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both regulatory and distributive programs including the Clean Air Acts, Clean Water Acts, sewer grants, hazardous wastes, Superfund, pesticides, toxic substances, marine protection, and noise control.

The EPA's structural arrangement relative to elected institutions is unique compared with the other agencies we have examined. It is an independent executive branch agency with a single administrator located directly in the chain of command of the president. The chief executive appoints the EPA administrator and scrutinizes agency policy through the various control mechanisms of the institutional presidency. However, in spite of the structural advantage to the executive, the courts and Congress have always influenced EPA policy. Most environmental legislation allows citizen lawsuits, ensuring continued involvement of interest groups and federal courts in environmental regulation (Melnick 1983). Congress has also maintained a special relationship with the EPA, since most environmental legislation originated there, rather than in the executive. Through the early years legislative sponsors chaired important oversight committees and held frequent hearings to assure program development. Moreover, congressional attentiveness to environmental issues remained strong due to the high salience and popularity of these programs with the U.S. people. With such a complex array of political forces, it is unclear what particular external stimuli should have affected EPA behavior most. Nonetheless, certain events should have been important.

The saga of the early Reagan administration effort to curtail environmental regulation is detailed elsewhere (Harris and Milkis 1989; Vig and Kraft 1984; Waterman 1989). Essentially, the Reagan administration used the entire array of executive tools to subdue the professional bureaucrats at the EPA. Reagan nominated—and Congress approved in May

1981—a strongly antienvironmental administrator, Ann Gorsuch (later Burford), to head the agency. Before and after Gorsuch's arrival, there were massive personnel shifts and reorganizations of various subunits. Beginning in fiscal year 1982 there were also large budget and personnel reductions for virtually every program. So political control could have come through multiple channels.

With time Congress became disillusioned with administration policy. An aroused EPA constituency, along with the upcoming 1982 elections probably sparked the disillusionment. Hearings began in October 1981 and occurred frequently through July 1982. A specific focus of many hearings was the EPA's management of the hazardous waste program. There was strong evidence that Administrator Burford and hazardous waste chief Rita Lavelle knowingly allowed dumping of hazardous chemicals at illegal sites. Finally, the administration made a crucial mistake. Congress requested hazardous waste enforcement files; but the administration refused to provide them, claiming executive privilege. In December 1982 Congress cited EPA Administrator Burford for contempt of Congress. The ensuing adverse publicity led to the firing of Rita Lavelle and the resignation of all other Reagan appointees. In March 1983 Reagan accepted Administrator Burford's resignation and nominated William Ruckelshaus to replace her. Congress quickly approved the Ruckelshaus nomination, since he was widely respected. Ruckelshaus moved swiftly to restore EPA programs by recruiting zealous personnel and providing strong leadership. In October 1983 Congress reaffirmed its commitment to environmental policy by restoring some of the funds removed in fiscal year 1982.

The preceding suggests multiple stimuli that could and did affect EPA activities from 1981 to 1983. One of us (Wood 1988) reported movements in one EPA



**Table 3. The Impact of Political Stimuli on Independent Executive Agency Outputs (EPA)**

Variable and Parameter	Estimate	t-ratio
Contempt citation ( $\omega_0$ )	1.34	8.29
FY 1984 budget		
$\omega_0$	.71	3.35
$\delta_1$	.60	5.50
Noise Components and Diagnostics		
ARIMA	(1,0,0)(0,0,1),	—
Autoregressive ( $\phi$ )	.31	2.86
Moving average ( $\Theta$ )	.33	3.07
Mean ( $\mu$ )	1.97	24.90
Residual mean square (noise only)	.28	—
Residual mean square (full model)	.14	—
Residual mean square (percent change)	50.17	—
Autocorrelation of residuals (Q)	18.50	—
DF	21	—

*Note:* The intervention series were step functions. The series was logged to achieve variance stationarity.

program—clean air—in response to some of these events. That analysis reported no response to the Burford appointment. However, there were strong responses to the fiscal year 1982 budget reduction and the Burford resignation/Ruckelshaus nomination. Wood's analysis (1988) showed clearly that there were limits on executive power over the bureaucracy. However, it does not capture the full dynamic of policy movements at the EPA through this period, since it employed an aggregate measure of only a single program. Moreover, that analysis involved a program ancillary to the central policy dispute between the president and Congress.

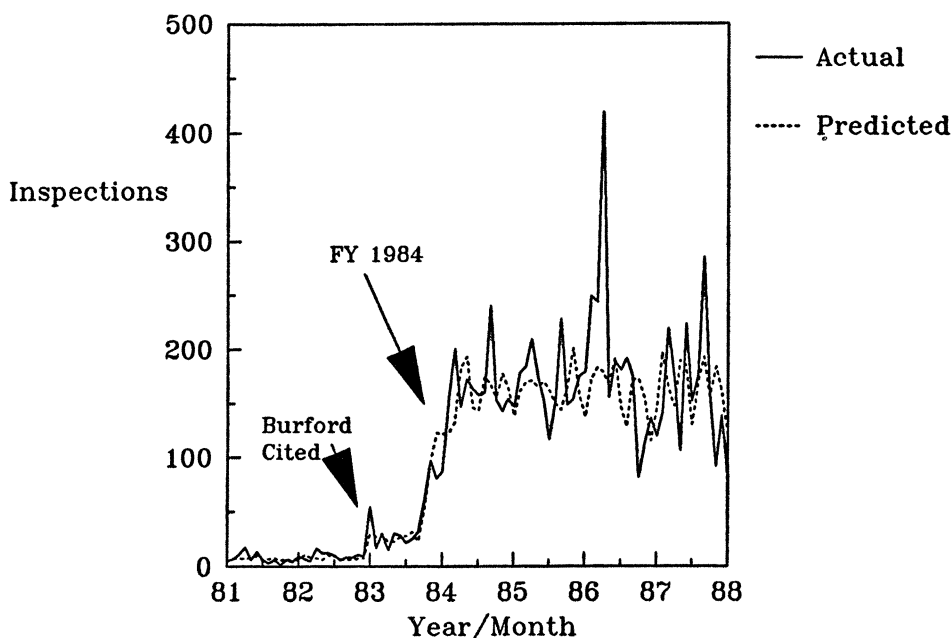
We report here an analysis for the EPA's hazardous waste program, which was the focus of the controversy between the president and Congress. Table 3 and Figure 7 describe the fluctuations in hazardous waste inspections between 1981 and 1988.<sup>10</sup> We found no statistically significant response to any of the early Reagan administration stimuli reported elsewhere (Wood 1988). However, the hazardous waste program was not firmly established by 1981, so the Reagan admin-

istration effect was probably to delay program development rather than to suppress already-established programs. However, we did find responses to later events in this scenario.

Beginning in January 1983, one month after Congress cited Administrator Burford for contempt, there was a step increase in hazardous waste inspections by regional offices. This was two months before the resignation of Administrator Burford and the nomination of William Ruckelshaus to head the EPA. Numerically, the contempt citation caused a change in inspections to a level 3.82 times higher than the preintervention mean (or from about 7.17 to about 27 inspections per month). However, inspections are a resource-intensive activity, so larger increases were not possible until Congress restored EPA's budget. Beginning in fiscal year 1984 there was an immediate doubling of the number of inspections, followed by a gradual increase to a new level 5.96 times higher than the level after the Burford contempt citation (or from about 27 inspections to about 163 inspections per month). Thus, for the EPA policy in which Congress was most directly in-

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Figure 7. The Impact of the Burford Contempt Citation and Fiscal Year 1984 Budget on EPA Hazardous Waste Inspections



involved, legislative influence was clearly manifest through the powers of oversight and appropriations.<sup>11</sup>

### Implications and Conclusions

These case studies demonstrate causal movements in the programs of seven different federal bureaucracies from the late 1970s through most of the 1980s. Viewed in isolation, each case study contributes something to understanding the particular policies discussed. However, considered as a unit they offer improved understanding of the dynamics of public policy control more generally. We think this second view is the more important to emphasize for several reasons. First, the seven cases reveal the scope and mechanisms of political control of the bureaucracy. Second, they suggest some of the covariates of

bureaucratic responsiveness that may guide future research on political control. Finally, the case studies point to a form of policy analysis that could enhance future democratic control of the bureaucracy.

Concerning the scope of political control, we found causal movements in all seven of the agencies we examined. Movements occurred repeatedly through time for some agencies. Stated more generally, at certain times in the cycle of U.S. politics, responsiveness permeates the U.S. bureaucracy. As new democratic majorities sweep newly elected officials into office, nonelective bureaucracies transmit demands for change. Of course, the election of Ronald Reagan and a Republican Senate in 1980 marked an extraordinary time in the cycles of U.S. politics, so the stimuli to bureaucracies were very strong. Nevertheless, the fact

that movement occurred in all seven cases suggests responsiveness is not all that uncommon.

Concerning the specific mechanisms of political control, the case studies demonstrate that political appointment—a shared tool of the president and Congress—is very important. In five of the seven programs we examined, agency outputs shifted immediately after a change in agency leadership. In four of these cases (the NRC, the EEOC, the FTC, and the FDA) change followed an appointment at the beginning of a presidential administration. The direction and magnitude of these responses reflects the increased power of a chief executive in the period after a presidential election. However, the case of the EEOC also shows change in the middle of an administration when pluralist forces are more likely to dominate. In both cases, the responses reveal that political appointments dominate the dynamic of institutional control.

However, one other case we studied—the NHTSA—highlights the importance of political appointments beyond the context of institutional control. The Anikis appointment at the NHTSA reflected neither congressional nor presidential influence, since no Senate confirmation occurred and the change was an apparent mistake by the Carter administration. In this unusual situation, movement followed the path prescribed by the appointee. The implication is that political appointees, even without top-down support, can have extraordinary influence over agency policy. This case also suggests the efficacy to elected officials of careful selection processes and diligent monitoring of agency activities.

The leadership of an agency is the most frequent mechanism for changing agency behavior. However, it is not the only mechanism. Reorganizations, congressional oversight, and budgeting are also important. The OSM case illustrates the importance of agency organization to

political responsiveness. When leadership at the OSM and Department of the Interior centralized control of enforcement decisions, there was an immediate reduction in enforcements by field personnel. Thus, the principle is, *The greater the centralization of agency decision-making processes, the greater the executive control over bureaucratic outputs.*

The EPA's hazardous waste enforcement program illustrates the importance of congressional oversight and budgeting to political control. Enforcements by the EPA's hazardous waste compliance division increased sharply after intense congressional interest and the resulting Burford contempt citation. However, the contempt citation was largely symbolic; and the agency could not respond fully without increased enforcement capacity. It took the budget increases of fiscal year 1984 to move hazardous waste enforcements to significantly higher levels. Thus, congressional signals were important; but it was the congressional appropriations process that determined EPA's capacity to respond to political demands.

Our expressed purpose was to reveal the scope and mechanisms of political control of the bureaucracy. We accomplished this task with findings so rich in detail that full exposition is difficult here. However, there are also implications for future research that should be discussed. We have always known that the stable equilibria of bureaucracies reflect passive political control by the Congress and the president, who jointly create federal programs, as well as by the courts. However, the pattern of movements shown above also demonstrates active political control. We believe this evidence for active political control is so strong that controversy should now end over *whether* political control occurs (see, e.g., Eisner and Meier 1990; Rourke 1989). Future research should turn toward exploring the *determinants* of political control.

Several questions should be important

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to future research on the determinants of political control. Does responsiveness depend on bureaucratic structure, personnel attributes, mission complexity, or administrative constraints? How do constituency effects relate to political-bureaucratic equilibria? Is issue salience an important factor? This study by design, with its focus on discrete stimuli, was not equipped to answer such questions. However, comparison of movements between agencies does imply something of these relations.

On the one hand, agency responsiveness and stability can roughly be arrayed along a continuum which aligns nicely with certain bureaucratic attributes. The agencies most responsive to executive influence, gauged by the magnitude and duration of change, were those situated in the executive departments. The FDA in the Department of Health and Human Services, the NHTSA in the Department of Transportation, and the OSM in the Department of Interior had outputs that remained lower than their preintervention levels for the duration of their series. These agencies also implemented programs lower in issue salience, weaker in constituency, and further from congressional attention.

On the other hand, the agencies with the most stable outputs were the independent regulatory commissions. The NRC reflects the extreme position since its outputs moved only briefly away from an equilibrium to return quickly without external intervention. The EEOC Office of General Counsel responded for a time to executive influence, but outputs rebounded when Congress and aroused constituencies intervened. The FTC was the single exception to this rule, since its outputs remained depressed throughout the Reagan administration. However, the FTC was also exceptional in that both the president and Congress agreed that decreased FTC activity was desirable. Thus, structure is important—but not

overriding when multiple democratic principals jointly demand a policy outcome.

Findings about the mechanisms, scope, and covariates of bureaucratic responsiveness are important because they increase scientific knowledge of U.S. democracy. However, the findings and methods used here also suggest a form of policy analysis that could enhance future democratic control of the bureaucracy. We believe that analyses of the sort presented here, which we dub *policy monitoring*, should become routine for federal agencies. Federal agencies should report selected outputs into a central tracking system on a regular basis, where they would be available to policy analysts and academics. Analysts would then evaluate outputs, making them available to institutional actors and the public. Such analyses would serve the scholarly purpose of tracking movements in the pluralist equilibria of the U.S. system. They would also serve a social purpose in making politicians and bureaucrats more accountable and informed.

Knowledge by the policy community of consequences tied to specific policy actions (e.g., nominations or confirmations) would focus attention on public officials, making them more responsible for their actions. Potentially, this could alter the incentive structure of institutional processes. Of course, some public officials might prefer avoiding the increased scrutiny policy monitoring could bring, so the method may never be formalized by government. However, whether monitoring is done by government officials or academics, such activity would benefit in other ways.

Policy monitoring would offset some of the information asymmetry that now exists between the president, the Congress, and the bureaucracy. The empirical literature cited earlier suggests that elected representatives seldom engage in effective oversight of agency activities. This works



to the advantage of actors with the most information (i.e., bureaucrats or politicians who would conceal policy movements). The solution to this problem of democratic control is increased information. Thus, policy monitoring would allow public policy change to occur in the full view of all concerned participants. It would also allow rational feedback systems to develop for correcting unwanted movements away from a pluralist equilibrium.

Of course, policy monitoring is not a panacea. Some bureaucratic outputs are nonquantifiable or difficult to analyze. Under monitoring there could also be a tendency for some agencies to focus on outputs, rather than outcomes (i.e., bean counting). Data-reporting systems could be subject to misuse by unscrupulous agencies or individuals. However, we believe the potential benefits of policy monitoring far outweigh the limitations. Increased information could only open up the political process and remove the deep-seated suspicions that now surround non-elective bureaucracies in a representative U.S. democratic system.

### Appendix: Methodology

The goal of the research was to find the "best" model for explaining political control at each agency we studied. This involved hypothesis testing, but not in the traditional one-shot, deductive sense. Rather, it involved dynamic iterative procedures that integrated both qualitative and quantitative methods.

We did an initial case study of each agency to develop working hypotheses. The purpose was to determine what particular stimuli could possibly have caused political control at an agency. After all, it made little sense to hypothesize that political appointments caused change when an appointment was nonideological. Likewise, one could hardly assert that

budgets, reorganizations, congressional oversight, or other political tools changed bureaucratic outputs when these stimuli were not present. Thus, we searched archives for contextual evidence on possible causes of changed bureaucratic outputs.

This qualitative research supplied initial expectations about what particular stimuli could possibly have caused change at the various agencies. It also told us of the timing, magnitude, and duration of potential changes. With this information, we formulated hypotheses for time series analysis of monthly or quarterly data. The independent series were dummy variables designed to operationalize predictions from the case studies.

We modeled several dependent series for most agencies. Each reflected a different dimension of the agency's "core technology" output as defined by Thompson (1967). However, we have reported only one measure for each agency because of space limitations. We selected models to report based on clarity of presentation and robustness of results.

We used Box-Jenkins (1976; see also Box and Tiao 1975) methods to do the time series modeling. These methods were well suited to the task because of their unique ability to establish causal relations with finely divided data. Box-Jenkins methods establish causal sequence through empirical evidence (i.e., the cross-correlation function and hypothesis tests), not just by a priori theorizing. Another strength of these methods is their overriding concern with controlling extraneous historical effects. They require the user to develop dynamic forecasts of current observations based on past observations (i.e., ARIMA models). These dynamic forecasts are then included in final models to control for background noise before hypothesis testing.

Another reason we chose Box and Jenkins's techniques was their consistency with our research strategy. We viewed modeling as a *process*, not just a one-shot

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hypothesis-testing procedure. Some conflict was anticipated between case study results and statistical analysis. Consistently, Box-Jenkins methods portray modeling as an iterative process that continues until a best model results (1976, 17–19; McCleary and Hay 1980, 141–45). The researcher uses empirical tools to define and redefine model specifications until satisfying some objective statistical criterion.

The objective statistical criterion we used in this study was the minimum of Akaike's Information Criterion (AIC). We chose AIC because it is "a mathematical formulation of the principle of parsimony in model building" (Akaike 1974, 719). It measures the goodness of fit while imposing a penalty for overspecification (Sawa 1978). The statistic is computed  $AIC = 2\ln(L) + 2k$ , where  $L$  is the likelihood function, and  $k$  is the number of free parameters. We emphasize that AIC will never minimize where a model retains extraneous information, so the final models we have reported contain only relevant variables.

In some instances the model-building process involved iteration between qualitative and statistical methods. This was because some of the initial hypotheses from case studies were rejected by the statistical analysis. In these instances we did follow up research by reexamining archival sources and conducting interviews with officials. Based on new information, we developed second-iteration hypotheses. Statistical analysis began again. The process continued until we obtained a best-fitting model for each series.

We should note that this research design provided two different types of control for alternative explanations. First, it provided statistical control by modeling the history of each time series as an ARIMA process, which assured that random chance, seasonal fluctuations, and omitted process variables did not cause the findings. Second, it provided quasi-

experimental control by integrating case study materials with time series analysis. Campbell and Stanley observe that the major threat to validity for the time series design is history (1963, 39; see also Cook and Campbell 1979, 211). That is, some event other than the hypothesized event may have caused the change. To check this possibility we did follow-up case study analysis to verify the consistency of the statistical findings with reality.

We should also emphasize that multiple tests of the same stimulus-response relationships greatly increase the strength of our design. Five of the seven agencies under investigation showed a response in the month or quarter after a political appointment. Two of these agencies showed responses to multiple appointments. These appointments all occurred at different times. Finding a plausible alternative explanation for all of these occurrences seems highly implausible.

## Notes

We thank John Scholz, Alex Mintz, William West, Barbara Headrick, Jeffrey Cohen, Joseph Stewart, David Hedge, and Robert Duval for comments on earlier versions of this manuscript.

1. The term *responsiveness* used here and throughout means the extent to which outputs from a bureaucracy change with application of an external political stimulus. Accordingly, we view political appointments, changing budgets, reorganizations, oversight activities, personnel manipulation, and other events as potential stimuli for change.

2. We would not presume here to decide what the role of the executive and legislatures should be with respect to political control of the bureaucracy. This is a normative question that cannot be settled by empirical research. Moreover, those issues are best left to the courts or political philosophers. Still, empirical research can offer evidence as to the consequences of political control of the bureaucracy by various constitutional actors.

3. There are two exceptions to the methodological critique offered here. Moe (1985) used quarterly data to evaluate outputs from the NLRB. In creating dummy variables for separate presidencies, he assumed that change occurred in the quarter after the first political appointment. This was by assump-

tion, however, and Moe was more concerned with *who* affected policy than *how* they affected it. On the other hand, Wood (1988) was concerned with the mechanisms of political-bureaucratic control. Monthly data were used to evaluate responses in EPA's clean air program to various political stimuli. Still, that study involved only one agency, so it may not be generalizable.

4. We should also point to a disadvantage in using finely divided data. Some process variables (e.g., political ideology or interest group influence) do not lend themselves well to such analysis because there are no monthly measures of these factors. Thus, this analysis is restricted to how events, not processes, affect bureaucracies. Certainly, not all political control mechanisms operate instantaneously, as we have pointed out elsewhere (Wood and Waterman 1990). Nevertheless, since many are applied abruptly, we should still see many of the mechanisms of political control.

5. For the EEOC we had only one measure of outputs that had finely divided time intervals—litigations. The series we report includes litigations for individual cases of employment discrimination, and gender discrimination litigations into one measure. The EEOC was uncooperative in providing additional monthly data.

6. Ferejohn and Shipan (1989) argue the importance of congressional "signals" in their case study of the Federal Communications Commission (FCC). They observe that Congress acted in a cohesive and rational fashion to change FCC decisions on user fees after the deregulation of the telephone industry.

7. We should note here that the FTC suffered budget reductions in March and October 1981 from the Carter proposed budgets for fiscal years 1981 and 1982. There was no perceptible response to the May reduction. Unfortunately the October reduction coincided precisely with Miller's arrival at the commission, so it is difficult to say with complete confidence that the observed response did not have a fiscal component. We opt for the appointment explanation because the FTC did not respond to the earlier fiscal interventions. However, over the longer term, budgets may have been important.

8. Moreover, Goodman and Wrightson assert, based on a qualitative assessment, that the Reagan administration was unsuccessful in manipulating the NRC's regulatory process through either appointments or the budget (1987, 178–81). So a finding of responsiveness would be interesting.

9. Technically, the FDA commissioner was appointed by the secretary of the Department of Health and Human Services, Richard Schweiker, not by Ronald Reagan. Senate confirmation of the appointment was not required.

10. Some data were available before 1981. However, EPA officials cast doubt on their validity because the hazardous waste reporting system was not fully in place.

11. We can confirm the response to the Burford contempt citation with four other measures, including litigations, notices of violation, informal actions, and formal administrative orders. The estimates reported for the hazardous waste series in Table 3 are in the natural log metric. A log transformation was necessary to equalize preintervention and post-intervention variances. The ratios reported here are computed  $\exp^{w0}$ . The mean levels are simply antilogs of the sums of reported statistics.

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